

**CPC****COOPERATIVE PATENT CLASSIFICATION****D01F****CHEMICAL FEATURES IN THE MANUFACTURE OF ARTIFICIAL FILAMENTS, THREADS, FIBRES, BRISTLES OR RIBBONS; APPARATUS SPECIALLY ADAPTED FOR THE MANUFACTURE OF CARBON FILAMENTS****D01F 1/00****General methods for the manufacture of artificial filaments or the like**

- D01F 1/02 . Addition of substances to the spinning solution or to the melt ([addition of substances to viscose D01F 2/08 to D01F 2/20](#))
- D01F 1/04 . . Pigments
- D01F 1/06 . . Dyes
- D01F 1/07 . . for making fire- or flame-proof filaments
- D01F 1/08 . . for forming hollow filaments
- D01F 1/09 . . for making electroconductive or anti-static filaments
- D01F 1/10 . . Other agents for modifying properties
- D01F 1/103 . . . {[Agents inhibiting growth of micro-organisms](#)}
- D01F 1/106 . . . {[Radiation shielding agents, e.g. absorbing, reflecting agents](#)}

**D01F 2/00****Monocomponent artificial filaments or the like of cellulose or cellulose derivatives; Manufacture thereof**

- D01F 2/02 . from solutions of cellulose in acids, bases or salts
- D01F 2/04 . . from cuprammonium solutions
- D01F 2/06 . from viscose ([preparation of alkali cellulose C08B](#))
- D01F 2/08 . . Composition of the spinning solution or the bath ([preparing or dissolving cellulose xanthate C08B](#))
- D01F 2/10 . . . Addition to the spinning solution or spinning bath of substances which exert their effect equally well in either
- D01F 2/12 . . . Addition of delustering agents to the spinning solution
- D01F 2/14 . . . . Addition of pigments
- D01F 2/16 . . . Addition of dyes to the spinning solution
- D01F 2/18 . . . Addition to the spinning solution of substances to influence ripening
- D01F 2/20 . . . for the manufacture of hollow threads
- D01F 2/22 . . by the dry spinning process
- D01F 2/24 . from cellulose derivatives
- D01F 2/26 . . from nitrocellulose
- D01F 2/28 . . from organic cellulose esters or ethers, e.g. cellulose acetate
- D01F 2/30 . . . by the dry spinning process

**D01F 4/00 Monocomponent artificial filaments or the like of proteins; Manufacture thereof**

- D01F 4/02 . from fibroin
- D01F 4/04 . from casein
- D01F 4/06 . from globulins, e.g. groundnut protein

**D01F 6/00 Monocomponent artificial filaments or the like of synthetic polymers; Manufacture thereof**

- D01F 6/02 . from homopolymers obtained by reactions only involving carbon-to-carbon unsaturated bonds
  - D01F 6/04 . . from polyolefins
  - D01F 6/06 . . . from polypropylene
  - D01F 6/08 . . from polymers of halogenated hydrocarbons
  - D01F 6/10 . . . from polyvinyl chloride or polyvinylidene chloride
  - D01F 6/12 . . . from polymers of fluorinated hydrocarbons
  - D01F 6/14 . . from polymers of unsaturated alcohols, e.g. polyvinyl alcohol, or of their acetals or ketals
  - D01F 6/16 . . from polymers of unsaturated carboxylic acids or unsaturated organic esters, e.g. polyacrylic esters, polyvinyl acetate
  - D01F 6/18 . . from polymers of unsaturated nitriles, e.g. polyacrylonitrile, polyvinylidene cyanide
  - D01F 6/20 . . from polymers of cyclic compounds with one carbon-to-carbon double bond in the side chain
    - D01F 6/22 . . . from polystyrene
    - D01F 6/24 . . from polymers of aliphatic compounds with more than one carbon-to-carbon double bond
    - D01F 6/26 . . from other polymers
- D01F 6/28 . from copolymers obtained by reactions only involving carbon-to-carbon unsaturated bonds

**NOTE**

For the purposes of groups [D01F 6/30](#) to [D01F 6/96](#), the percentage for determining the major constituent is expressed in mole percent.

- D01F 6/30 . . comprising olefins as the major constituent
- D01F 6/32 . . comprising halogenated hydrocarbons as the major constituent
- D01F 6/34 . . comprising unsaturated alcohols, acetals or ketals as the major constituent
- D01F 6/36 . . comprising unsaturated carboxylic acids or unsaturated organic esters as the major constituent
- D01F 6/38 . . comprising unsaturated nitriles as the major constituent
- D01F 6/40 . . Modacrylic fibres, i.e. containing 35 to 85% acrylonitrile
- D01F 6/42 . . comprising cyclic compounds containing one carbon-to-carbon double bond in the side chain as major constituent

- D01F 6/44 . from mixtures of polymers obtained by reactions only involving carbon-to-carbon unsaturated bonds as major constituent with other polymers or low-molecular-weight compounds
- D01F 6/46 . . of polyolefins
- D01F 6/48 . . of polymers of halogenated hydrocarbons
- D01F 6/50 . . of polyalcohols, polyacetals or polyketals
- D01F 6/52 . . of polymers of unsaturated carboxylic acids or unsaturated esters
- D01F 6/54 . . of polymers of unsaturated nitriles
- D01F 6/56 . . of polymers of cyclic compounds with one carbon-to-carbon double bond in the side chain
  
- D01F 6/58 . from homopolycondensation products
- D01F 6/60 . . from polyamides (from polyamino acids or polypeptides [D01F 6/68](#))
- D01F 6/605 . . . {from aromatic polyamides}
- D01F 6/62 . . from polyesters
- D01F 6/625 . . . {derived from hydroxy-carboxylic acids, e.g. lactones}
- D01F 6/64 . . . from polycarbonates
- D01F 6/66 . . from polyethers
- D01F 6/665 . . . {from polyetherketones, e.g. PEEK}
- D01F 6/68 . . from polyaminoacids or polypeptides
- D01F 6/70 . . from polyurethanes
- D01F 6/72 . . from polyureas
- D01F 6/74 . . from polycondensates of cyclic compounds, e.g. polyimides, polybenzimidazoles
- D01F 6/76 . . from other polycondensation products
- D01F 6/765 . . . {from polyarylene sulfides}
  
- D01F 6/78 . from copolycondensation products
- D01F 6/80 . . from copolyamides
- D01F 6/805 . . . {from aromatic copolyamides}
- D01F 6/82 . . from polyester amides or polyether amides
- D01F 6/84 . . from copolyesters
- D01F 6/86 . . from polyetheresters
  
- D01F 6/88 . from mixtures of polycondensation products as major constituent with other polymers or low-molecular-weight compounds
- D01F 6/90 . . of polyamides
- D01F 6/905 . . . {of aromatic polyamides}
- D01F 6/92 . . of polyesters
- D01F 6/94 . . of other polycondensation products
  
- D01F 6/96 . from other synthetic polymers
  
- D01F 8/00** **Conjugated, i.e. bi- or multi-component, artificial filaments or the like; Manufacture thereof**

- D01F 8/02 . from cellulose, cellulose derivatives, or proteins
- D01F 8/04 . from synthetic polymers
- D01F 8/06 . . with at least one polyolefin as constituent
- D01F 8/08 . . with at least one polyacrylonitrile as constituent
- D01F 8/10 . . with at least one other macromolecular compound obtained by reactions only involving carbon-to-carbon unsaturated bonds as constituent
- D01F 8/12 . . with at least one polyamide as constituent
- D01F 8/14 . . with at least one polyester as constituent
- D01F 8/16 . . with at least one other macromolecular compound obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds as constituent
- D01F 8/18 . from other substances
- D01F 9/00 Artificial filaments or the like of other substances; Manufacture thereof; Apparatus specially adapted for the manufacture of carbon filaments**
- D01F 9/02 . of reaction products of rubber with acids or acid anhydrides, e.g. sulfur dioxide
- D01F 9/04 . of alginates
- D01F 9/08 . of inorganic material ([from softened glass, minerals or slags C03B 37/00](#); { [obtaining ceramic fibres C04B 35/62227](#); incandescent bodies F21H, [H01K 1/02](#), [H01K 3/02](#)})
- D01F 9/10 . . by decomposition of organic substances ([D01F 9/12 takes precedence](#))
- D01F 9/12 . . Carbon filaments; Apparatus specially adapted for the manufacture thereof {(with [fullerene structure, e.g. carbon nanotubes C01B 31/0206](#))}
- D01F 9/127 . . . by thermal decomposition of hydrocarbon gases or vapours { [or other carbon-containing compounds in the form of gas or vapour, e.g. carbon monoxide, alcohols](#)}
- D01F 9/1271 . . . . {Alkanes or cycloalkanes}
- D01F 9/1272 . . . . . {Methane}
- D01F 9/1273 . . . . {Alkenes, alkynes}
- D01F 9/1274 . . . . . {Butadiene}
- D01F 9/1275 . . . . . {Acetylene}
- D01F 9/1276 . . . . {Aromatics, e.g. toluene}
- D01F 9/1277 . . . . {Other organic compounds}
- D01F 9/1278 . . . . {Carbon monoxide}
- D01F 9/133 . . . . Apparatus therefor
- D01F 9/14 . . by decomposition of organic filaments
- D01F 9/145 . . . from pitch or distillation residues
- D01F 9/15 . . . . from coal pitch
- D01F 9/155 . . . . from petroleum pitch
- D01F 9/16 . . . from products of vegetable origin or derivatives thereof, e.g. from cellulose acetate ([D01F 9/18 takes precedence](#))
- D01F 9/17 . . . . from lignin

D01F 9/18	....	from proteins, e.g. from wool
D01F 9/20	....	from polyaddition, polycondensation or polymerisation products ( <a href="#">D01F 9/145</a> , <a href="#">D01F 9/16</a> , <a href="#">D01F 9/18</a> take precedence)
D01F 9/21	.....	from macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
D01F 9/22	.....	from polyacrylonitriles
D01F 9/225	.....	{from stabilised polyacrylonitriles}
D01F 9/24	....	from macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
D01F 9/245	.....	{from polyurethanes}
D01F 9/26	.....	from polyesters
D01F 9/28	.....	from polyamides
D01F 9/30	.....	from aromatic polyamides
D01F 9/32	....	Apparatus therefor
D01F 9/322	....	{for manufacturing filaments from pitch}
D01F 9/324	....	{for manufacturing filaments from products of vegetable origin}
D01F 9/326	....	{for manufacturing filaments from proteins}
D01F 9/328	....	{for manufacturing filaments from polyaddition, polycondensation, or polymerisation products}
<b>D01F 11/00</b>		<b>Chemical after-treatment of artificial filaments or the like during manufacture</b> ({of artificial filaments from softened glass, minerals or slags <a href="#">C03C</a> ; from ceramics <a href="#">C04B</a> ; finishing <a href="#">D06M</a> )
D01F 11/02	.	of cellulose, cellulose derivatives, or proteins
D01F 11/04	.	of synthetic polymers
D01F 11/06	..	of macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds
D01F 11/08	..	of macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds
D01F 11/10	.	of carbon
D01F 11/12	..	with inorganic substances {Intercalation}
D01F 11/121	...	{Halogen, halogenic acids or their salts}
D01F 11/122	...	{Oxygen, oxygen-generating compounds (anode oxidising <a href="#">D01F 11/16</a> )}
D01F 11/123	...	{Oxides}
D01F 11/124	...	{Boron, borides, boron nitrides}
D01F 11/125	...	{Carbon}
D01F 11/126	...	{Carbides (boron-comprising compounds <a href="#">D01F 11/124</a> ; nitrogen carbide <a href="#">D01F 11/128</a> )}
D01F 11/127	...	{Metals (metal depositing by electrolysis <a href="#">D01F 11/16</a> ; metal alloys with reinforcing carbon fibres <a href="#">C22C 49/14</a> )}
D01F 11/128	...	{Nitrides, nitrogen carbides (nitrogen borides <a href="#">D01F 11/124</a> )}
D01F 11/129	...	{ Intercalated carbon- or graphite fibres}
D01F 11/14	..	with organic compounds, e.g. macromolecular compounds

D01F 11/16 . . by physicochemical methods

**D01F 13/00 Recovery of starting material, waste material or solvents during the manufacture of artificial filaments or the like**

D01F 13/02 . of cellulose, cellulose derivatives or proteins {(recovery of sodium sulfate from coagulation baths [C01D 5/006](#))}

D01F 13/04 . of synthetic polymers